

# MISSOURI. Conservationist

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# Stream Health Report Card

Recently, I went through a personal health assessment that included a variety of tests. I participated in cardiovascular trials, a height-to-weight evaluation, plus strength, flexibility, balance,

vision, hearing, urinary and blood tests. I count on medical professionals to provide recommendations for improving or maintaining my health. The primary responsibility for my health, however, falls on me. Although this year's tests will tell me how my body is holding up, it is good for my mental health to get a good report card on my physical status.

Speaking of report cards, a number of Missourians would like to track our efforts to manage our aquatic resources. These are my kind of folks. They want us to earnestly pursue the *Next Generation of Conservation's* goal of "Protecting Clean and Healthy Waters" (read more about this plan in our September 2006 issue or at [www.missouriconservation.org/12843](http://www.missouriconservation.org/12843)).

They often ask me how our streams are doing in Missouri. This is a difficult question to answer. Some streams have been abused and are obviously not in good condition. We struggle to assemble a set of "stream health tests" that can be applied to all our streams. Devising tests that apply to aquatic communities that live in a trickle of an upland creek as well as those in the Missouri and Mississippi rivers is a tough assignment.

We are making progress, however. Fisheries management biologists and aquatic resource scientists are systematically sampling aquatic communities across the state and looking for signs of health or symptoms that indicate problems.

To help get more people involved, we are working on a stream management handbook, similar to our popular pond

management handbook, that should help citizens and landowners recognize if their streams are getting better or worse. Installments of the stream handbook will be posted on the Web as they are completed.

We have identified several critical components for our stream health report card, and we intend to develop a Web site where we can post field-survey results from the Department of Conservation and other agencies.

Habitat improvement techniques also are being developed to help landowners and public land managers improve streams.

Much work remains to be done to protect and improve our streams. Natural resource professionals are ready and able to assist, but ultimately it is the people who use and/or live along Missouri's streams who must continue to recognize the value and importance of enhancing the health of streams for future generations.

Several years ago, a tourism slogan touted our state's stream resources with "Missouri—Where the Rivers Run."

Unfortunately, many of our rivers do not run as clean as they should, and too many aquatic communities are not as healthy as they should be. Wouldn't it be great if in the future we could proudly proclaim, "Missouri—Where All the Rivers Run Clean and the Fish are Healthy!"

Steve Eder, fisheries division chief



STEVE EDER grew up in southeastern Indiana and began his professional career nearly 33 years ago with the Missouri Department of Conservation. In his leisure time, he enjoys fishing with family and friends and teaching his grandchildren how to enjoy the outdoors.

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**OUR MISSION:** *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*

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## RINGING AND REELING

**On the cover:** Photographer Noppadol Paothong captured this Virginia bluebell in Blue Spring in Shannon County. They can be found blooming from March to June statewide except for northwestern and southwestern sections. To learn more about Missouri's wildflowers, visit [www.missouriconservation.org/8419](http://www.missouriconservation.org/8419).

**Left:** Many Missourians enjoy great fishing in their private ponds thanks in part to the Department of Conservation's private pond stocking program. Read our feature article "Private Pond Stocking," starting on page 14, to learn more about this program.

## NextGEN

This section reports on goals established in *The Next Generation of Conservation*. To read more about this plan, visit [www.missouriconservation.org/12843](http://www.missouriconservation.org/12843).

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## Hide and Seek

I WAS DETERMINED TO TAKE PHOTOS OF THE RARE AND REGAL KING RAIL.

Story and photos by Noppadol Paothong

Wildlife photographers don't have normal working hours. Hoping to capture the mating behavior of king rails, I rose at 1 a.m. one day last June and drove from Jefferson City to a wetland area north of St. Louis. Accompanied by the sounds of countless bullfrogs seemingly trying to harmonize, I waded through water and thick vegetation to a place where I'd spotted king rails just a few days earlier. With two cameras—one wide-angle and one supertelephoto—and an electronic caller set up beside me, I watched the sun rise. I hoped the king rails would still be there.

Bodies of king rails are flattened slightly from side to side. The narrow shape enables them to slip through dense marsh grass without moving it. They spend most of their time hiding in tall grasses, and prefer freshwater marshes and shrub swamps with a water depth from 1/4-inch to 10 inches.

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## RAIL TALENT

I don't know what I enjoyed more—Noppadol Paothong's photographs of king rails or his story about what it took to capture the images. A wonderful article on all fronts [*Hide and Seek*; April 2007].

I am probably one of thousands of "would-be" nature photographers whose heart races when the *Missouri Conservationist* arrives. The tenacity and endurance required to photograph wildlife is beyond comprehension to those of us who stalk nothing more than wild asparagus (pun intended...and stolen) as a photo subject. Write on and shoot on, Paothong!

P.S. The magazine's new look is great, too.  
*Lee Phillion, Missouri master naturalist*  
*Confluence Chapter, St. Charles*

**CHOOSE AN ADVENTURE**  
Thank you for putting on the youth turkey hunting clinic. My dad and I went to the one on March 24 at the Apple Creek Conservation Area in Altenburg.

We met at 6:30 a.m. and listened for turkeys. We heard quite a few gobbles. Then we scouted for turkey signs and found scratching, scat and feathers. Next we set up scenarios, good or bad,

and decided what we should do. We learned what turkeys eat and how to use turkey calls (slate calls, box calls and push calls). We also learned the rules and regulations of turkey hunting and about the gear that you need. Then we patterned our shotguns, which was a lot of fun.

At the end of the turkey clinic, the conservation staff handed out box calls, a call bag and information sheets and books.

Thanks again for a great day.

*Justin Gibbar, via Internet*

*Editor's note: The Department of Conservation offers clinics and classes throughout the state. Whether you're interested in hunting, fishing, hiking, birdwatching or other outdoor activities, you're bound to find an exciting course to fit your skill level. Equipment is often provided for participants, and most classes are offered free to the public. To learn more about what's happening in your area, call your regional Conservation office (see page 3), or visit our Calendar of Events online at [www.missouriconservation.org/4163](http://www.missouriconservation.org/4163).*

## BATTLING BLUEBIRDS

We are fortunate to have several pairs of nesting bluebirds using our bird boxes each year. The other day, I saw two males fighting for the right to mate with a female. Will the dominant male hurt or kill the other male?

*Steve Schiwing, Cape Girardeau*

*Editor's note: According to Andy Forbes, ornithologist, "Territorial disputes and disputes over females are very common among bluebirds. Don't let their pleasant appearance and cheery song fool you; they can be extremely aggressive during the breeding season toward other birds, especially other bluebirds. Usually, disputes consist of pecking, clawing, pulling of feathers and rolling on the ground, followed by a loss of pride by the loser. Birds rarely kill one another, although it does happen. Keeping the boxes about 300 feet apart, or at least out of sight of one another, should help prevent squabbles."*





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## Reader Photo

## SUNRISE ON SMITHVILLE

Located about 20 minutes from downtown Kansas City, Smithville Lake offers steady, high-quality fishing for bass, crappie, walleye, catfish and white bass. The 7,200-acre reservoir also features ramps, trails, picnic tables, shelter houses, restrooms, beaches, playgrounds and camping sites. This photo was taken near Camp Branch Marina by Jeff Parsley of Smithville.

## on the WEB

This month check out our featured Web pages, or go online anytime to learn more about conservation at [www.missouriconservation.org](http://www.missouriconservation.org).



### FREE FISHING DAYS

[www.missouriconservation.org/4162](http://www.missouriconservation.org/4162)

Maybe you've never fished before, and you're not sure it's right for you. Wet your line in state waters without buying fishing permits or trout tags at most locations.



### MISSOURI'S OUTDOOR WOMEN

[www.missouriconservation.org/13226](http://www.missouriconservation.org/13226)

This program offers women fun and exciting opportunities to explore or enhance outdoor skills from expert instructors.



### SMALLMOUTH BASS FISHING

[www.missouriconservation.org/13108](http://www.missouriconservation.org/13108)

Smallmouth fishing offers lightning-bolt strikes, bulldog runs and athletic jumps. The season opens May 26 on all Ozark streams.



## ASK THE OMBUDSMAN

**Q:** Does a good cold winter reduce tick and chigger populations, or is that just wishful thinking?

**A:** We finally had a bit of winter weather last season, but we likely won't know what sort of impact it had on the ticks and chiggers until July.

I visited with the Department's entomologist and learned that, while weather can be a factor in the survival of ticks and chiggers, there are a number of variables which make this a difficult question to answer.

Ticks and chiggers over-winter in leaf litter and topsoil. They actually do quite well during a cold winter with snow cover. The snow insulates them and provides protection. A tick- and chigger-unfriendly winter would be good and cold, then warm up, allowing a break from hibernation, and then quickly turn back to frigid temperatures—but we still might have plenty of ticks and chiggers the following summer. How the predators of these insects over-winter is a factor, and spring and summer weather may have as much to do with tick and chigger survival as winter weather.

With no way to make absolute predictions, the next logical question is how to control ticks and chiggers. A well-maintained yard and good repellent may be the best way to deal with ticks and chiggers, though pesticides are also an option for homeowners. Here are sites from the University Extension which may be helpful: <http://extension.missouri.edu/explore/agguides/pests/g07398.htm> and <http://extension.missouri.edu/explore/agguides/pests/g07382.htm>.

Ombudsman Ken Drenon will respond to your questions, suggestions or complaints concerning Department of Conservation programs. Write him at P.O. Box 180, Jefferson City, MO 65102-0180, call him at 573-522-4115, ext. 3848, or e-mail him at [Ken.Drenon@mdc.mo.gov](mailto:Ken.Drenon@mdc.mo.gov).

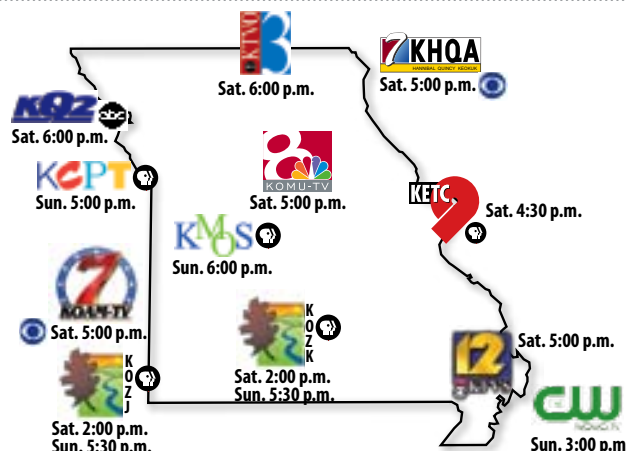
## on the TV

For additional show information and video clips, be sure to visit

[www.missouriconservation.org/8726](http://www.missouriconservation.org/8726).



Television  
the way  
nature  
intended!







## Species of Concern

## Prairie Fringed Orchids

## Singing for its Supper

*Enjoying the gray treefrog's prodigious swallowing ability.*

Almost every county in Missouri has an abundance of Cope's or eastern gray treefrogs (*Hyla chrysoscelis* & *versicolor*, respectively). The two species look very similar. Both live in hardwood forests and bottomland. Males produce high-pitched trills from mid spring through early summer to attract females. They often perch near patio lights, which attract their insect prey. For natural entertainment, catch a moth and hold its fluttering wings near one of these cheerful singers. Then watch as the greedy amphibian uses both front feet to help swallow the dusty morsel.



## Deer Cam Goes to School

*Live video links teach kids about the scientific method.*

A new reality show is coming to Missouri schools. The host is a white-tailed deer, and the lesson is how scientists solve problems in pursuit of knowledge. To learn what deer eat, biologists decided to put cameras on deer. In April, hundreds of elementary pupils watched a live show in which researchers mounted a video camera on a deer and released the animal. They discussed the process that led to development of the deer-cam. A live link let pupils at six schools ask questions. Participating teachers received DVDs with hours of deer-cam footage prior to the event, so pupils could do their own investigations of deer habits. To see for yourself, visit [www.missouriconservation.org/13943](http://www.missouriconservation.org/13943).



**Common name:** Eastern and western prairie fringed orchid

**Scientific names:** *Platanthera leucophaea* and *P. praeclara*

**Range:** Scattered locations in eastern and western Missouri

**Classification:** State endangered, federally threatened

**To learn more:** [www.missouriconservation.org/122](http://www.missouriconservation.org/122)

MISSOURI WAS FORMERLY home to two species of prairie fringed orchids. The eastern species was only known from a few eastern Missouri counties, and has not been found here since 1951. Only three populations of the western species are known to exist in Missouri today, all of them in the state's northwest corner. These sweet-smelling flowers probably never were what you could call common. However, the loss of the prairie and wetland habitats that they need surely has made them rarer still. Prairie conversion for agriculture and invasion by woody plants are the greatest threats to these species. The western species is pollinated by several species of night-flying hawkmoths.



## Scrivner Road CA

*Has one of more than 70 unstaffed shooting ranges*

Scrivner Road Conservation Area (CA) in Cole County, is one of more than 70 areas with unstaffed shooting ranges. This one is top of the line, with 20 concrete shooting benches under roof and target holders from 25 to 100 yards. The shotgun range has a concrete pad for target throwers. Use of these ranges is free. Call



573-884-6861 for more information about the shooting range at Scrivner Road CA. For information about other Department unstaffed shooting ranges

visit [www.missouriconservation.org/14114](http://www.missouriconservation.org/14114).



## The Wild St. Francis

*Wild enough to challenge the most skilled paddlers.*

The St. Francis undergoes a dramatic transformation between its headwaters in Iron County and the Arkansas state line. The upper part flows through granite shut-ins that challenge even Olympic kayakers when it is swollen with rain. Below Sam A. Baker State Park, the action shifts from paddling to walleye fishing. The Madison County stretch is best. Below Lake Wappapello, the St. Francis becomes a lowland river, flowing through swamps and the flat agricultural land. There is some very good spotted bass fishing downstream from Kennett. You can launch canoes at the Department of Conservation's Chalk Bluff Trail, Coldwater, Fisk, Gruner Ford, Roselle and Syenite accesses, at Ben Cash Conservation Area, Sam A. Baker State Park, at the USDA Forest Service's Silver Mines Recreation Area and at U.S. Army Corps of Engineers accesses at Highway 34 and immediately below Lake Wappapello.

## Trail Guide



### GOLDEN VALLEY NATURE TRAIL



LOOKING FOR A variety of outdoor experiences? Try the Golden Valley Nature Trail at the Department of Conservation office at 2010 Second St., Clinton. The main trailhead is south of the office entrance road. The East

and South loops (1.6 and 1.2 miles) skirt mature pecan groves that are maintained so hikers can easily fill their pockets in the fall. The Wetland Loop (1.7 miles) circles a wetland, with an overlook where you can see flowering plants, migratory birds and other wildlife. Most of the trails traverse wooded terrain, but some spots have open views of Truman Lake. A short spur connects the Wetland Trail to the Clinton office, with an archery range, restrooms, gift shop and conservation publications. The office is open from 8 a.m. to 5 p.m. Monday through Friday. A pond near the office is open to fishing except during May and June, when it is used for fishing clinics.

**No. of trails:** Three trails totaling 4.5 miles

**Unique features:** Truman Lake and wetland overlooks, archery range, fishing pond and pocketfuls of pecans.

**Contact by Phone:** 660-885-6981

**For more information:** [www.missouriconservation.org/2930](http://www.missouriconservation.org/2930), and search "Clinton"





## TAKING ACTION

## Forestkeeper Volunteers



**Group featured:** Forestkeepers volunteers Pat and Bob Perry  
**Group mission:** Habitat restoration and conservation education  
**Group location:** Rolla  
**To become a Forestkeeper:** 1-888-9-FOREST  
**For more information:** [www.forestkeepers.org](http://www.forestkeepers.org) or visit  
[www.missouriconservation.org/13920](http://www.missouriconservation.org/13920)



PAT AND BOB Perry of Rolla, Mo. express their love of the outdoors by planting trees and seeds of knowledge about conservation. As volunteers with the Forestkeepers Network, the couple has planted several hundred trees in and around their hometown to restore habitat and to help young people learn about conservation.

The Perrys' accomplishments include invasive plant eradication and habitat improvement projects at Tanager Trails, the Audubon Nature Reserve in Rolla, and the Bonebrake Center of Nature and History in Salem. The projects were used as mentoring opportunities with the Americorps and Girl Scouts of America programs. The couple believes teaching youngsters to appreciate nature and enjoy the outdoors is equally as important as being stewards for our outdoor resources. For their efforts the Perrys twice have received the Forestkeepers Network's "Land Steward of the Year" award.

## Go Fish

*New program uses volunteers to teach fishing.*

Few things can match the excitement of catching your first fish. You can help St. Louis-area youngsters experience the fun of fishing by volunteering with the Department of Conservation's new GO FISH! program. GO FISH! gives kids 8 through 15 hands-on fishing instruction and teaches youngsters about aquatic conservation. Programs are offered at Suson Park, Bellefontaine CA and Forest Park. Donations of fishing equipment and other supplies are also accepted. For more information, contact Denise Otto at *Denise.Otto@mdc.mo.gov* or 636-300-1953, ext. 243.



## Land Learning Foundation

*Volunteers needed to provide hands-on training.*

The Land Learning Foundation needs you. The non-profit organization, committed to educating youth about the importance of wetlands and riparian systems, seeks to expand programs for youngsters who have little or no opportunity to engage in the outdoors.

The organization needs volunteers to assist with a Youth Game Fair August 25 at their facility outside of Triplett in Chariton County and a new program it conducts with Big Brothers-Big Sisters of Central Missouri. Volunteers help provide hands-on training in wetlands management, waterfowl hunting, canoeing, hiking and other outdoor recreational activities.



To learn more about the Land Learning Foundation, call 660-634-2240 or visit [www.landlearning.org](http://www.landlearning.org).



## Free Fishing Days

*Once-a-year opportunity to get hooked on a new hobby.*

Prepare for the summer fishing season by participating in Free Fishing Days June 9 and 10. On Free Fishing Days the Department of Conservation suspends the requirement for fishing permits, trout permits and daily tags. Special permits still may be needed at some county, city or private areas, but fishing is free in most waters of the state. This includes the state's four trout parks, where daily tags will be issued free



of charge. Regulations regarding size and daily limits remain in effect. For more information on Free Fishing Days in Missouri visit [www.missouriconservation.org/4162](http://www.missouriconservation.org/4162).

## Missouri's Outdoor Women

*Bring a friend and join us for a weekend of fun at the Lake.*

Women looking for exciting outdoor adventures will find them at the Missouri Outdoor Women (MOW) Workshops June 8 through 10. Women of all skill levels have the opportunity to learn or sharpen outdoor skills with expert instructors. Workshops include fishing, canoeing, archery, handgun, shotgun and rifle shooting and wild edibles.

The annual MOW gathering is held at the Windermere Conference Center. The registration fee is \$20, and the deadline is June 1.



Call now to register, space is limited. For more information or to register, contact Regina Knauer, 573-522-4115, ext. 3829, [Regina.Knauer@mdc.mo.gov](mailto:Regina.Knauer@mdc.mo.gov).

[mo.gov](http://mo.gov) or Jackie Haffer, 573-522-4115, ext. 3292, [Jackie.Haffer@mdc.mo.gov](mailto:Jackie.Haffer@mdc.mo.gov).

## Smallmouth Bass Fishing

## Scout it Out



**Area name:** Gasconade River Smallmouth Bass Management Area

**Directions:** Boat ramps for the Gasconade River are located one-tenth of a mile off route D in Jerome and six miles north of St. Robert at the end of Route Y.

**For more information:** Visit [www.missouriconservation.org/13231](http://www.missouriconservation.org/13231) to download maps of and learn more about smallmouth bass special management areas



FISH THE GASCONADE River for big action on smallmouth bass. On the 20-mile stretch of the stream between Highway Y in Pulaski County and Highway D in Phelps County, smallmouth are plentiful and some are trophy-sized. The healthy fish population is the result of a 1995 regulation change that established the stream section

as a special management area for smallmouth where anglers may harvest only one smallmouth that measures 18" or longer. Anglers can expect to catch about twice as many 12-15" smallmouth in the special management area than they will fishing in other parts of the stream.

Anglers can enjoy nature viewing and floating while on the Gasconade. A wide variety of wildlife inhabit the hardwood forests surrounding the stream and although it has some surprisingly fast sections, the Gasconade is a good, safe floating stream.

Missouri has more than 300 miles of streams with special management regulations. To learn more about fishing opportunities in those areas visit the fishing page of the Missouri Department of Conservation Web site [www.missouriconservation.org/4174](http://www.missouriconservation.org/4174).





## Tick Avoidance

*Preventive measures that will help you enjoy the outdoors.*

Usually the worst outcome of a tick bite is knowing you're a host to a parasite, but in rare instances tick bites can result in serious illness. Ticks carry several diseases, including tularemia, Rocky Mountain spotted fever, ehrlichiosis and Lyme disease. Symptoms to watch for following a tick bite are:

- Swelling at the site of the bite. In Lyme disease a raised, target-shaped rash begins to develop within a few days, eventually reaching several inches in diameter.
- Unexplained flu-like symptoms; fever, headaches, body aches, dizziness.
- Any unusual rash.

A person infected with a tick-borne disease may have all or none of these symptoms. If you consult a doctor, be sure to mention that you've recently been bitten by a tick.

Protective clothing and insect repellent can help prevent tick bites. When outdoors, wear long-sleeved shirts, long pants and boots with your pants tucked into socks or boots. Rubber bands, blousing bands or tape can be used to secure the cuffs of your pants. Insect repellents containing DEET or Permanone also are recommended.



## Don't Adopt Newborn Fawns

*Good intentions usually lead to unhappy endings.*

Look but don't adopt is the rule to follow when encountering fawns in the wild. Usually the animals have not been orphaned. For the first couple of weeks after birth, a doe leaves her fawns hidden and only periodically returns to feed them. Reducing contact with her young keeps predators from finding helpless fawns. Human adoption generally leads to a deer's death. It's difficult to duplicate the natural diet of a deer. Even if you successfully feed the animal, it's denied a chance to learn from parents how to live in the wild. Missouri research studies have found that fawns raised by humans don't survive when returned to the wild.

## FEATHERED FASCINATION

## The Dawn Chorus

YOUR FAVORITE RADIO jingle and the dawn chorus have a lot in common: Both serve as advertising. Male singing lets females know the singers are available to mate and warns rivals to stay out of the singers' nesting territories. A male will fly about and sing from different perches in his territory to announce area boundaries. This keeps the area from being invaded by competitors and protects the food supply for his family.

It is well worth the time to rise early this month and treat yourself to a natural concert of birdsong. The dawn chorus occurs during the spring breeding season in May and June. The natural serenade begins as the first light fills the eastern sky.

Robins are the early morning carolers. Their warbled songs mingle and carry for blocks. Next, the cardinals' whistle is added to the mix, followed by the coo of doves. As rural areas awaken, the songs of meadowlarks, field sparrows and bluebirds join the chorus. The singing quickly builds to a crescendo, then slowly begins to subside around sunrise. After another hour or two the total number of singers has diminished, as many of the birds set about the chore of finding food.

To learn more about birds in Missouri, visit [www.missouriconservation.org/8167](http://www.missouriconservation.org/8167) or [mo.audubon.org](http://mo.audubon.org).



American robin





## Citizen Activists

*Three Stream Teams joined forces to build awareness.*

**S**hari and Bob LaRoussa (ST2542), Doris and Bob Sherrick (ST2574) and Stacy Wilson (ST2523) formed the South Grand River Watershed Alliance to promote community watershed protection. The group now has 20 members and is about to launch a membership drive. The Alliance has applied for a Mid-America Regional Council (MARC) grant to install a rain garden at the Raymore-Peculiar Middle School and is sponsoring programs to acquaint people with government watershed protection programs and resources. For more information, contact the Alliance at [info@southgrandwatershed.com](mailto:info@southgrandwatershed.com) or visit [www.southgrandwatershed.com](http://www.southgrandwatershed.com).



## Floods and Flood Plains

*Giving rivers places to spread out during high flows.*

**T**he Great Flood of 1993 taught Missourians some tough lessons about rivers and their flood plains, but it wasn't until several years later that the river delivered an object lesson.

Flooding in 1993 forced more than 10,000 people from their homes. Dozens died in flood-related incidents, and property damage ran into the billions of dollars. The flood breached levees

and rendered thousands of acres of farmland useless.

State and federal agencies purchased some of the devastated acres from willing sellers at market value and set them aside. In some cases, levees on this land were set back farther from the river. In areas where other landowners were not affected, land was left open to the river. In all, more than 21,000 acres were made available for the river to spread out in times of flooding.

Torrential rains returned in 1995, and the National Weather Service predicted another flood. However, the flood never materialized. The same thing happened in 2002. Did setting aside flood-plain land prevent two floods? No one will ever know for sure, but giving the river elbow room could only have helped.

## Stream Team



### Ladue Middle School



WHENEVER THE MISSOURI Stream Team program celebrates an anniversary, so does Stream Team No. 76. Elizabeth Petersen organized Ladue Middle Schools Stream Team when the program was still in its infancy.

A self-described "nature girl," Petersen grew up playing in creeks, so it was natural for her to adopt the small stream behind her house. As a seventh-grade science teacher, she has made caring for creeks part of her curriculum. With the help of other Ladue Middle School science teachers, she introduces more than 250 youths to water-quality monitoring each year.

Working Stream Teams into the science curriculum gives students a chance to be scientists, rather than just reading about scientists. They learn about science through hands-on experience gathering data in the real world. Parents who tag along on field trips are amazed to see their children transformed from kids into competent investigators working to preserve Missouri's priceless stream heritage.

**Stream Team #:** 76

**Date formed:** Dec. 4, 1989

**Location:** Ladue

**For more info about Stream Teams:** [www.mostreamteam.org](http://www.mostreamteam.org)



## Our Glorious Forests

RUDOLPH BENNITT CA



**Size:** 3,575 acres

**Location:** Junction of Howard, Randolph and Boone Counties

**Importance:** Wildlife habitat, research, education and multiple recreation opportunities, including disabled-accessible facilities

**Things to do:** Picnic, watch wildlife, bird, hike, bike, ride horses, hunt, target practice at the shooting range, fish, camp, collect firewood (with permit)

**Online information:** [www.missouriconservation.org/2930](http://www.missouriconservation.org/2930) and search "Bennitt"

**For more information contact the area manager:** 573-884-6861



THE FOREST AT Rudolf Bennett Conservation Area in central Missouri defines the phrase "multiple use." The Department of Conservation manages it for everything from natural communities and research to recreation and hunting opportunities. Ten miles of trail meander through upland oaks, across bottomlands and by a 60-acre lake. Use the trails

to hike, bike or ride your horse. From the trail or roads, you may notice forest and habitat management, as well as signs explaining these techniques. Take note of the area's woodland and savanna restoration, which are designed to increase natural diversity. Many hunters use the forest at Bennett CA to hunt deer, turkey and squirrels, and firewood permits are issued to the public as well. Whether your interest is recreation, natural resource use or diverse natural communities, the forest in Rudolf Bennett CA has something for you.

## Professional Foresters

*Help protect forest health and increase revenue.*

Y our timber stand took at least 75 years to grow. A poorly conducted harvest could set it back by decades.

A Department of Conservation or private consulting forester can help ensure your forest's long-term health and productivity and can help you increase harvest revenue while taking into account tax and estate planning considerations.



For more information about getting professional help with your timber harvest, call your local Department office (see page 3 for phone numbers) or visit [www.missouriforesters.com](http://www.missouriforesters.com).

## Rebuilding After the Storm

*Forest products important to ice storm recovery efforts.*

ast winter's ice storms showed many Missourians just how much we depend on forest products, especially in the form of utility poles.

Mary Scruggs of the Association of Missouri Electric Cooperatives reported that 15 utility systems lost 5,225 poles statewide. Electric companies large and small rushed to replace the poles, and many replacements came from private and federal pine forests in the Ozarks. Tony Parks of Current River Poles in Licking says that his supply group harvests about 50,000 utility poles a year from Missouri's pine forests. Of these, about 25 percent return to the state when local utility companies buy them.

Parks emphasized that, aside from providing basic services, pine forests managed for utility poles as well as overall forest health are good business.







## Farm Bill in Action: WHIP

*Wildlife Habitat Incentive Program has great benefits.*

Every five years, Congress debates the federal farm bill, which includes many conservation incentive programs that reward landowners for providing wildlife habitat. The Wildlife Habitat Incentives Program, for example, is popular with Missouri landowners such as Jim Gibson, who boosted wildlife populations on his property. The program provided up to 75 percent cost-share for prescribed burning, weed and tree control, native-prairie expansion and erosion reduction. You can track farm bill hearings at [agriculture.house.gov](http://agriculture.house.gov) or [agriculture.senate.gov](http://agriculture.senate.gov).



## Farm Bill in Action: WRP

*Wetland Reserve Program restores waterfowl habitat.*

Because Carroll County resident Patrick Jenkins' farm is prone to flooding, his levees and crops took a beating almost every year. In 1996, he looked into the Wetland Reserve Program, a farm bill provision that enabled him to reserve his flood-prone acres for wetland habitat and purchase "drier" acres for his farm operation. WRP is designed to help farmers provide critical and seasonal wetland habitat for migrating waterfowl. Landowners participate through easements or restoration cost-share agreements. Since 1992, Missouri has received 147.6 million WRP dollars, totaling 790 easements.



WRP is among the farm bill programs Congress will debate this summer.

Follow farm bill progress at [agriculture.house.gov](http://agriculture.house.gov) or [agriculture.senate.gov](http://agriculture.senate.gov).

## Food Plots

## Habitat Hint



**Habitat type:** Winter forage to supplement low-quality grassland habitat

**Wildlife affected:** Quail, songbirds and numerous wildlife species, depending on crops planted

**Best practices:** Plant near escape and nesting cover.

**Phone contact:** To locate a private lands conservationist near you, see page 3 for a list of regional office phone numbers.

**For more land management information:** [www.missouriconservation.org/7905](http://www.missouriconservation.org/7905)

IF QUAIL AND other wildlife are scarce on your property during winter, consider planting food plots this spring. Although they are no substitute for natural habitat, patches of soybeans, sorghum and other crops will help quail and other wildlife survive this coming winter. To make sure your food plots do the most good, plant them near shrubby cover or open stands of native warm-season grasses. Quail seldom venture more than 70 yards from shrubby cover, which they use for protection from predators and temperature extremes. Shrubby areas also harbor many native plants that produce high-nutrition foods, such as beggar's lice, ragweed and partridge pea.

For help developing high-quality food plots, consult the *Covey Headquarters Newsletter* or *Wildlife Management Practices*. To find them both online, go to [www.missouriconservation.org](http://www.missouriconservation.org) and search "headquarters" or "wildlife practices."





## Wheelin' Sportsmen

*Missouri's Accessible  
Outdoors event June 16th.*

Proving that outdoor fun belongs to all Missourians, the fourth annual Wheelin' Sportsmen event gives people with disabilities the chance to expand their skills and boundaries. Held at the Andy Dalton Shooting Range and Outdoor Education Center in Springfield, Wheelin' Sportsmen is co-sponsored by the Department of Conservation, the Sho-Me Gobbler Chapter of the National Wild Turkey Federation, Southwest Center for Independent Living, Greene County Sheriff's Department, Shrine Clowns of Springfield and Bass Pro Shops.

This year's event includes dozens of activities and programs for every outdoor interest, including fishing, pistol and rifle shooting, archery and landscaping for wildlife.

Event programs run June 16th from 8:30 a.m. to 4 p.m. Participation is free, but pre-registration is encouraged. To Register, please contact Patty Smith at the Southwest Center for Independent Living at 417-886-9519, or call Mike Brooks at the Andy Dalton Shooting Range, 417-742-4361.



## Powder Valley New Exhibits

*Teaching everyday practices  
that help nature and people.*

This spring, Kirkwood's Powder Valley Conservation Nature Center got a "nature experience makeover," including a suite of exciting new exhibits. You're invited to see and explore them Saturday, May 12, from 10 a.m. to 2 p.m. This special public event also celebrates Powder Valley's 15th year of operation, which officially occurred last fall.

The new exhibits are based on "choosing land-use practices that improve our quality of life." Saturday's events and programs feature a puppet theater for kids and workshop on landscaping with native plants. The event is free and open to the public. For more information, call Powder Valley CNC at 314-301-1500.

## NATURE ACTIVITY



## WOW St. Louis!



IF YOUR SUMMER plans include a Missouri outdoor adventure, get ready for it at WOW St. Louis! This all-day "outdoor recreation and conservation school" features expert instructors from the Missouri departments of

Conservation and Natural Resources. They join instructors from many other supporting groups to teach families and beginners outdoor skills and safety. Bass Pro Sports Shops and the Wonders of Wildlife National Fish and Wildlife Museum and Zooquarium sponsor the event.

**Be here:** Forest Park in St. Louis

**These days:** June 8th and 9th

**Class Choices:** Archery, nature photography, art in the park, canoeing, rock-climbing, the nature of woodworking, fishing, flag adventure game, pedaling in the park, geocaching and dutch oven cooking

**9 years to adult:** Sign up for three classes per participant.

**4-8 years old:** Participate in a separate children's day camp.

**Cost:** \$25.00 per family and \$15.00 per individual

**Registration deadline:** May 8

**To Register:** call 314-340-5794. Call now, space is limited.

**For more info:** [www.missouriconservation.org/c14093](http://www.missouriconservation.org/c14093)

# PRIVATE Pond Stocking

The right mix of species makes for a lifetime of fishing fun.

BY TORY MASON

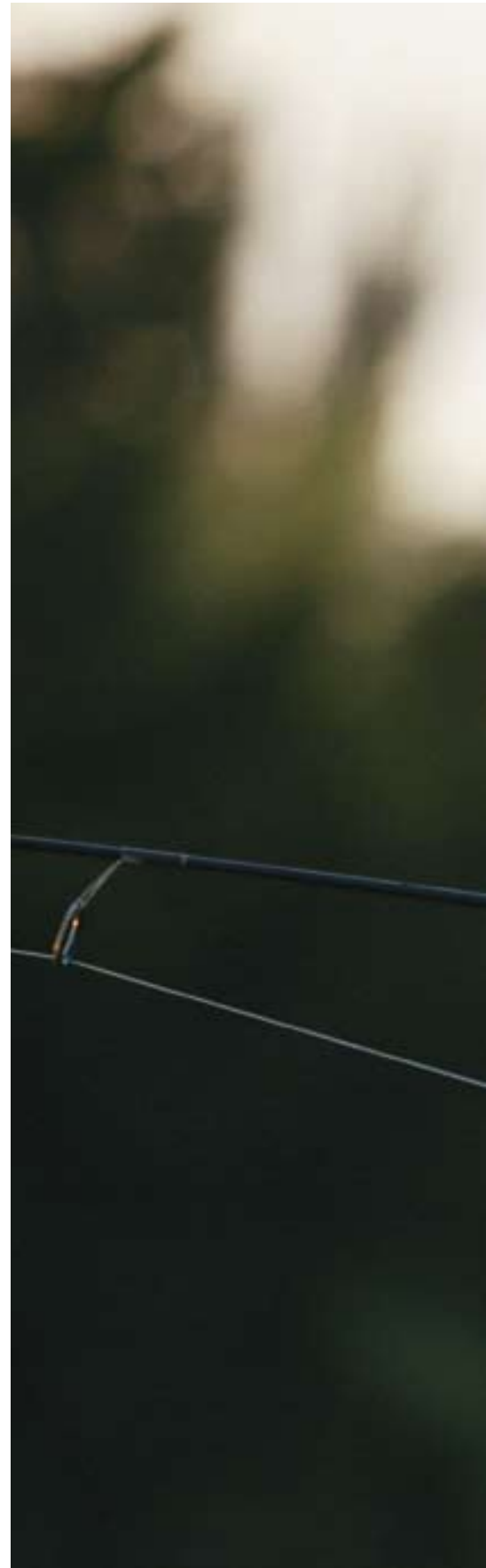
I screamed as the 8-inch bluegill pulled line from my Zebco 33 reel. The fight was on. I looked over to see if my dad was watching my magnificent catch, but he was grabbing a 4-pound largemouth bass by the lower lip. That day of fishing at the pond when I was just 7 years old is the first fishing trip I remember. I'm sure it helped turn me into an outdoor fanatic.



**Pond fishing for fish such as the bluegill above can be a great way to spend time with children outdoors. See the information box on page 16 to find out more about stocking your pond.**

No doubt, many Missouri anglers started out pond fishing. Missouri ranks at the top nationally in the number of small impoundments on private lands.

The more than 300,000 privately owned ponds and lakes in Missouri offer impressive fishing potential. A quick peek at our state records shows that seven record fish came from farm ponds, including the state record white crappie, bluegill and black crappie.







Quality pond fishing starts with introducing fish to the pond. Stocking is used when a new pond fishery is being created, to supplement ponds that have poor fish production, or to restore fish populations in ponds that have fallen victim to fish kills.

### WHAT FISH ARE BEST?

Years of research with fish stockings have demonstrated that largemouth bass and bluegill are the two species best suited for stocking in most ponds. Channel catfish are often stocked along with bass and bluegill to provide additional fishing and harvest opportunities.

Hard-fighting largemouth bass will be the top predators in your pond. Bass are voracious eaters that feed on small fish, frogs, crawfish and insects. In Missouri, largemouth bass live for six to 10 years unless they are harvested.

Bluegills provide food for largemouth bass as well as great sport and excellent table fare for anglers. Bluegills eat everything from microscopic plants and animals to insects, snails, crayfish and small fish. They can reach 6 inches long and start reproducing after just one year. Once introduced into a pond, they usually sustain their numbers through natural reproduction. Bluegills in Missouri may live five to 10 years.

Channel catfish are primarily bottom feeders, eating insects, crayfish and fish. They can



## Want Fish?

The Department of Conservation provides young-of-the-year largemouth bass, bluegill and channel catfish from 1 to 4 inches long to start or restore fisheries in private ponds. The number of fish provided is based on surface area of the impoundment and soil fertility.

Applications for fish are available at Missouri Department of Conservation offices (see page 3 for phone numbers), on the Department's Web site and from most county USDA offices. Completed forms must be submitted to a Department of Conservation Regional Office by July 15.

After the Department receives the application, a Department fisheries biologist or conservation agent will inspect each pond or lake to make sure it qualifies for stocking. The Department's fish stocking policy specifies the following minimum standards for participation.

- The pond or lake must be at least 8 feet deep.
- Water and shoreline must be protected from livestock use. Impoundments over 5 acres need not be fenced.
- The dam must be constructed for permanency and water tightness, and the drainage area should be adequate but not excessive for water storage.
- No undesirable fish, as determined by the impoundment inspector, may be present prior to stocking. Please contact the Department for information about removal of undesirable fish populations.
- Water quality must be sufficient to ensure initial survival of stocked fish and to sustain good fishing.
- Stocking may not adversely affect species of conservation concern.

Inspection results arrive by mail by September 1. Pond owners who are accepted for fish stocking will be notified when the fish are available by the hatchery.

The landowner or designated caretaker must be prepared to make two trips to accept delivery from the hatchery truck at a drop-off site in their county. Pond owners will receive bluegill and channel catfish in the fall, and largemouth bass in the spring of the following year. Fish must be handled according to instructions provided, and all fish must be stocked. They cannot be sold.

Landowners who receive fish from the Department retain full rights to control access to their pond. They are not required to allow fishing by the general public. However, anglers on private ponds that have been stocked with fish from the Department must follow the general fishing regulations listed in the Wildlife Code of Missouri.



be trained to feed on commercial food pellets. Populations of channel catfish rarely increase in ponds as the bass eat all the young ones. A supplemental stocking of channel catfish longer than 8 inches every two to three years is needed to sustain a fishery.

### HOW MANY DO I NEED?

The number of bluegill, bass and channel catfish that a pond can support depends on the amount of available living space and resources, referred to as carrying capacity. Condition of habitat, the amount of available food and space, and even the soil type in the watershed affect a pond's carrying capacity. The typical stocking combination for most farm ponds in fertile soil is 100 bass, 500 bluegill and 100 catfish per surface acre of water. Most of the time, stocking more fish than recommended is detrimental to the fishery.

Stocking rates are for 1- to 2-inch bluegill and 2- to 4-inch catfish in September. The following June, 1- to 2-inch bass are stocked. Stocking fingerlings is not only more economical (smaller



**Hatchery employees sort fish for a landowner prior to stocking. The number of fish provided is based on the surface area of the impoundment and a general soil fertility rating for the county where it is located.**

fish are cheaper to produce than larger ones), but it ensures uniform growth and produces better sport fishing in less time than stocking a smaller number of adult fish.

The Missouri Department of Conservation provides fish for stocking private ponds that meet certain guidelines. A landowner who



wants fish must fill out a pond stocking application and agree to have the pond inspected by the Department. (See “Want Fish?” on page 16 for more information.)

### WHAT ABOUT CRAPPIE?

“What about crappie?” many pond owners ask after I advise them to stock the usual combination of bass-bluegill-channel catfish.

It’s true that the state records for both Missouri crappie species came from private ponds. However, not all ponds produce quality crappie fisheries.

Successful crappie ponds typically have somewhat clear water and a lot of aquatic vegetation.

More important, pond owners must manage the pond intensively. You can’t just stock the pond and walk away. Landowners have to be willing to manage the pond for numbers of largemouth bass and make sure that the pond is fished often enough to remove adult crappie.

Crappie can be managed successfully in a pond, but owners must know beforehand that there is a risk that the crappie will spawn hordes of young and have very slow growth rates.

If, despite the risk, you decide to stock crappie in your pond, consider putting in black crappie, which don’t compete with bass for food as much as white crappie.

### GRASS CARP

Many landowners who want to clear their ponds of weeds stock white amur or “grass carp.” These

large Asian minnows can eat two to three times their weight in vegetation per day. When stocked at conservative rates, grass carp can offer pesticide-free vegetation control.

Grass carp, however, do not control filamentous algae, cattails or water lilies. Although they don’t reproduce in ponds, they are hard to remove and may live for up to 30 years.

Over-stocking grass carp results in a plant-free and muddy looking pond as the carp stir up bottom sediments searching for scarce plant life. A weed-free pond might sound nice when casting from shore, but aquatic plants are necessary to start the food chain, contribute dissolved oxygen to the water, provide cover for juvenile as well as adult fish, and protect shorelines from erosion.

Contact your local fisheries biologist for specific stocking information for your pond before trying this weed-control method.

### REDEAR SUNFISH

Another popular pond fish is the redear sunfish or “shell cracker.” These cousins of bluegills produce fewer offspring than bluegills and rarely provide enough food for largemouth bass by themselves. Rather than letting them replace bluegills, they are best added to a pond along with bluegills.

Redear sunfish are sometimes stocked to help reduce numbers of snails, which are part of the life cycle of the white grub parasite anglers sometimes see in the fins and meat of fish. Redear can grow larger than bluegill, reaching 2 pounds or more, and taste just as good as any other fish in the skillet.

### GO FISHING!

What is the best way to manage your pond? Fish it! Fish it with your family, fish it with your friends, and above all, introduce a youngster to the virtues of fishing.

Most of the time, the status of the pond’s fishery can be determined by fishing success. With proper management, a correctly stocked pond generally results in a balanced fish population that provides good fishing for years to come.

It was a good 30 years ago when my father took me to that half-acre pond, but the memories are still vivid, and I’ll bet the fishing there is still great. ▲



**Hatchery employees and a local conservation agent distribute fingerling fish at a drop-off site.**











**W**ould you let someone come in to your yard with a chain saw and cut down all your trees? Would you do it yourself? How about the trees in your city park?

Trees provide many benefits, including increased real estate values, reduced heating and cooling bills, reduced storm water flows, shady places to play and park and noise buffering. They are usually considered assets around homes and cities. Yet, many people are gradually killing their trees with their lawn care equipment.

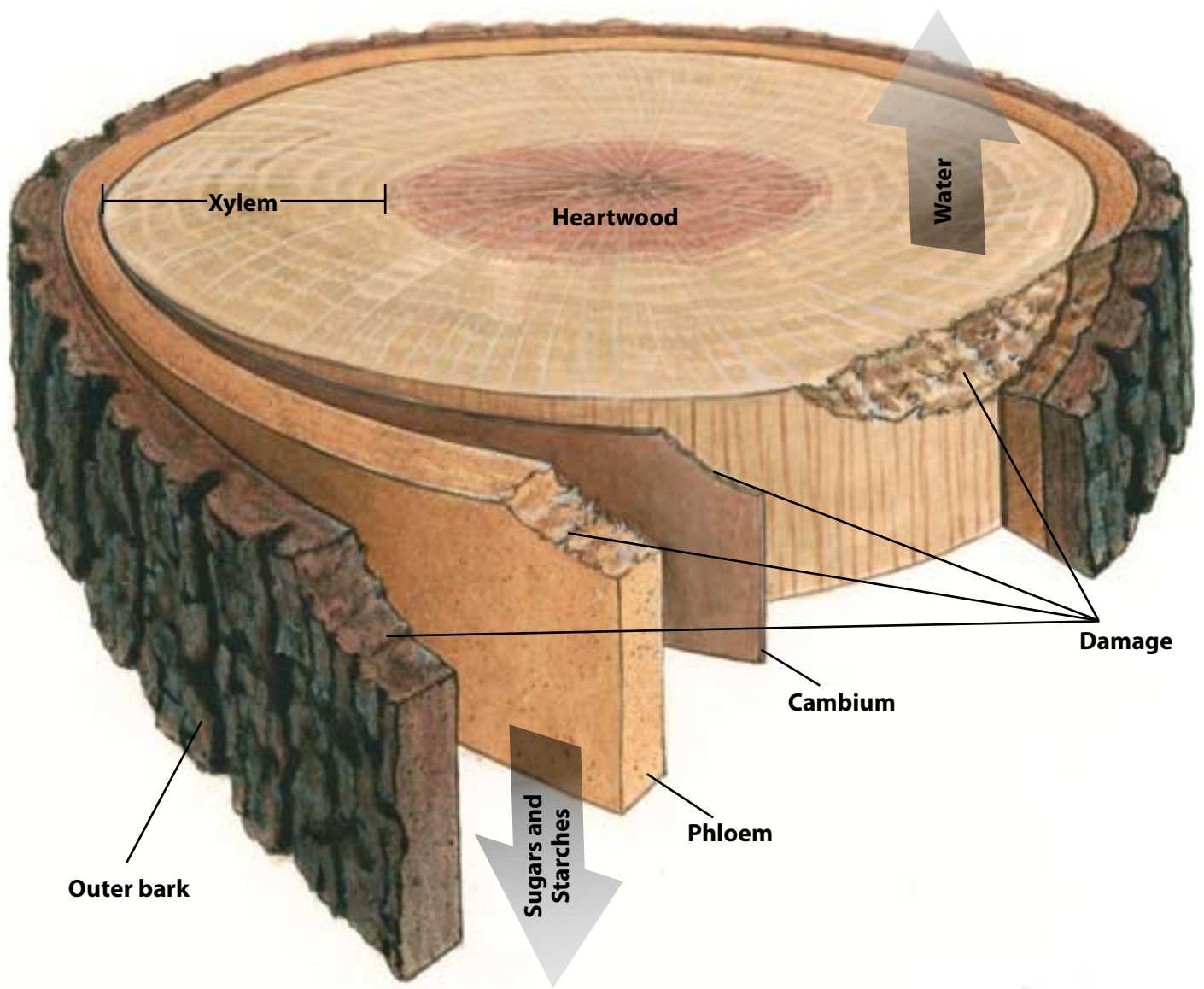
Recently, an acquaintance of mine stopped me in the grocery store. She knew I was the urban forester for her region, and she wanted me to contact a local city government about some lawn maintenance contractors who were hitting “her” tree—one which had been planted in her honor at a nearby city park.

# **Tree Killers** *in Our Yards*

**Lawn mowers and string trimmers  
can damage the bark of trees.**

*by Helene Miller, illustrations by Mark Raithe*





She knows what many people do not know: that trees can be seriously injured or killed when they are repeatedly hit with lawn mowers and string trimmers. I see this all the time in yards, city parks, commercial developments and other places that have trees and lawn.

Over time, the lawn care equipment gradually rubs or chips away the lower bark of a tree. This disrupts the tree's vascular system, which is located just beneath the bark.

Trees need to have their leaves and branches attached to their root system so water and nutrients can go up the tree and products of photosynthesis—sugars and starches that are needed for tree growth and survival—can go down to the roots.

The path up for the water is called the xylem

and is located in the wood. The path down for the sugars and starches is called the phloem and is located in the bark. The growth layer of the tree, the cambium, is located between the xylem and phloem at the divide between bark and wood.

Cambium cells divide every year, making a new row each of phloem and xylem. As every school child knows, you can count the rings—xylem rows—to tell how old a tree is. Only the new portions of xylem and phloem are used for transporting food and water.

Because these vital pipelines run through the outer part of the tree, they are easily injured by the careless use of equipment.

Young trees are more susceptible to lawn equipment damage because their bark is thinner, but even older, thick-bark trees can be killed. It

is the equivalent of cutting the tree down with a chain saw, only slower.

### Look for Damage

The most obvious sign of tree injury is missing bark at or near the ground line, where the string flays the tree or the lawn mower deck bumps it. Sometimes you can see one or several spots where the wood is worn bare.

Damaged trees usually show signs of stress, including leaves turning color too early in the year, leaves drying up in the summer and areas barren of foliage. The degree of stress is proportional to the number of xylem, phloem and cambium cells that have been destroyed. In most cases, highly stressed trees will die.

### Preventing Damage

This type of injury is 100 percent preventable by simply keeping lawn mowers and string trimmers away from trees.

Also, do not use trees as pivot points for mowers or allow pet chains to rub against them.

If a strip of taller grass and weeds around the tree trunk bothers you, either hand-trim it carefully or keep a weed-free zone around the tree with mulch or herbicide. Keeping the area clear of grass and weeds has the added benefit of removing competition for nutrients and moisture.

Use care when applying herbicides, especially around thin-barked trees. Don't allow the herbicide to get on the bark. Use a shield if necessary.

Mulching is more effective if you kill grass and weeds below it with herbicide first. Place 2–3 inches depth of mulch around each tree as far out as you want to go. Mulch should not touch the tree trunk. Think doughnuts—with a hole in the middle for the tree trunk. A publication on proper mulching is available from Conservation offices and online at [www.missouriconservation.org/317](http://www.missouriconservation.org/317).

You can also use ground cover barriers to keep grass and weeds from growing next to the tree. Covers that let oxygen and water penetrate through to the root system are better than those that do not, such as black plastic. Make a slit in

the cover to place it around the tree. Don't let it touch the tree trunk. Put mulch on top of the cover to make it look nicer and to help hold the cover in place.

You can further protect a small tree with a 6- to 12-inch-long piece of plastic irrigation pipe. Slit it along its length to allow you to fit it around the trunk. Keep it loose enough that it doesn't affect growth. Remove it or replace it with a larger size as the tree gets bigger.

### If Your Tree is Injured

Stop further damage! Protect the tree, and make sure whoever cares for your lawn understands how easy it is to damage bark.

Nothing you can put on the tree's wounds will fix the damage. However, trees are not defenseless. They grow over wounds, compartmentalizing them. The tree then attempts to restore or replace connections between the roots and the branches.

If the bark is gone from more than 50 percent of the circumference of the tree, it's usually best to remove the tree. Chances of recovery are slim, and

the tree will be susceptible to falling, especially during storms.

If less than 25 percent of the circumference of the tree is affected, it will likely recover. If the bark is missing from 25–50 percent of the tree's circumference, watch the tree for health issues like rot or branch dieback. A little time may help you to make the decision whether to keep or remove the tree.

Be sure to water damaged trees. Aim for a thorough soaking of the ground below the tree, whether by natural rainfall or supplemental watering, every 7–10 days during the growing season. Hopefully, there will be enough xylem left to transport sufficient water from the roots to the leaves.

Trees are living organisms. They look strong and invincible, but they are more easily killed than many people believe. Don't be a tree killer. Be careful with your lawn mower and string trimmer. Make it a policy to avoid hitting trees with them. ▲

*Trees are living organisms.  
They look strong and invincible,  
but they are more easily killed  
than many people believe.*





**Ground snake**



Some snakes  
never grow  
much larger  
than worms,  
and they  
are just as  
harmless.

*story and photos by  
Tom R. Johnson*

Most snake species native to Missouri are from 2 to 5 feet long—nose to tip of tail—but we also have many snake species that stay tiny throughout their lives. The shy flat-headed snake, for example, seldom grows longer than 7 inches, and a “gigantic” prairie ring-necked snake might measure just over a foot long.

People sometimes believe that any small snake they encounter is just a “baby snake.” If it has even a bit of red, brown or tan coloring they might think it is a baby copperhead, which to them seems to justify killing it.

While it’s never a good idea to kill any snake that doesn’t present a clear danger to people, killing small snakes that have no potential to harm us is certainly unnecessary.

Missouri’s group of small snakes are generally shy and reclusive. None of them are a threat to people. Even the few that inject venom through tiny fangs to subdue small prey cannot pierce human skin.

With a little time and study you can learn to recognize Missouri’s tiny snakes. Many of them have attractive colors and patterns, as well as fascinating life histories, making them great candidates for nature study.

tiny

# SNAKES





Ground snake

## Ground Snake

*Sonora semiannulata*

Length: 8 to 12 inches.

This snake is seldom seen in Missouri. It's found in only a few counties in the southwestern corner of the state, where it spends most of the time underground or under flat rocks on dry, rocky, south-facing hillsides.

Some ground snakes may have a plain background color of tannish-gray with no dark markings. Others may be orange to reddish-orange with numerous black or dark brown cross bands. Still others may be tan with one or two dark bands on the head and neck. Their belly is cream color with small, dark transverse bars on the tail.

This species lays from four to six eggs that hatch in August. Ground snakes have several enlarged, grooved teeth at the back of their upper jaws that may allow them to inject venom into their prey. The prey of this species includes small scorpions, centipedes and spiders, including small black widow spiders. Ground snakes are not dangerous to people.

## Northern Red-bellied Snake

*Storeria occipitomaculata*  
*occipitomaculata*

Length: 8 to 10 inches

Northern red-bellied snakes are closely related to brown snakes. Their coloration varies. The back and sides can be gray or reddish-brown with a faint, tan stripe down the center. Their belly can be yellowish-orange, orange or red—even scarlet-red.

This species is found throughout Missouri, except in the northwestern corner of the state. Red-bellied snakes can be found in moist, open woods with plenty of hiding places, such as flat rocks, boards or logs. Their prey includes earthworms, slugs, land snails and soft-bodied insects. They bear up to 21 young during late summer.



Northern red-bellied snake





Western worm snake

### Western Worm Snake

*Carphophis vermis*

Length: 7 to 11 inches

Purplish-brown above and salmon pink below, western worm snakes live underground and under flat rocks. Like many of our small snakes, they have a cone-shaped head and smooth skin that help them burrow through soil. Worm snakes also have a unique, sharp (but harmless) tip on their tail that may help them maneuver through the ground.

Western worm snakes are found throughout Missouri, except in the southeastern corner of the state and a few counties in north-central Missouri.

This species lives on wooded hillsides that have abundant rocks for shelter. They eat earthworms and soft-bodied insects. They lay eggs that hatch in August.



Female western worm snakes may lay from 1 to 6 elongated eggs during early summer. The eggs hatch during late summer.





Newly born midland brown snake coiled on a dime. Midland brown snakes may be tan, tannish-gray or reddish-brown.

## Midland Brown Snake

*Storeria dekayi wrightorum*

Length: 9 to 13 inches

The midland brown snake is one of several of Missouri's tiny snakes related to garter snakes and water snakes.

They are a gray-brown to reddish-brown snake with two rows of small, dark brown spots along the back. These spots are usually joined by small, dark brown lines across a tan stripe. Their belly is white or yellowish and has no markings.

This species prefers moist woodlands, where they take shelter under logs or rocks. Brown snakes eat mostly earthworms, but they also consume slugs, land snails and some soft-bodied insects.

Like garter snakes, brown snakes give birth to live young during late summer. Midland brown snakes can be found throughout most of Missouri. In the western third of the state, however, the Texas brown snake (*Storeria dekayi texana*) is more common.

Midland brown snake







Prairie ring-necked snake

### Prairie Ring-necked Snake

*Diadophis punctatus arnyi*

Length: 10 to 14 inches

This species of snake is common in Missouri and is easily identified. Just look for a yellow to yellowish-orange ring around its neck, just behind the head. The back and sides can be dark gray, dark brown or blue-black. The belly is yellow with small, black spots, and changes to orange at the tail.

Ring-necked snakes eat mostly earthworms, but they will occasionally eat soft-bodied insects and small salamanders. The eggs of ring-necked snakes hatch in late summer.

Ring-necked snakes can be found anywhere there is an abundance of flat rocks, boards or other objects on the ground where they can find shelter. This species occurs throughout Missouri. A subspecies, the Mississippi ring-necked snake (*Diadophis punctatus stictogenys*), lives in the southeast corner of the state.

### Lined Snake

*Tropidoclonion lineatum*

Length: 8 to 15 inches

Another relative of garter snakes, lined snakes are brown to grayish-brown with a lighter color stripe down the middle of the back and another light line along each side. The belly is white with two rows of black markings shaped like half moons.

This reclusive species can be found in open woodlands and prairies or on rocky hillsides. They take shelter under flat rocks or other objects on the ground. Earthworms are their main prey. From two to 12 young are born during July and August. This species occurs in east central, north-east and west Missouri and in a small part of central Missouri.



Lined snake





Flat-headed snake

## Flat-headed Snake

*Tantilla gracilis*

Length: 7 to 8 inches

Missouri's smallest snake, the flat-headed snake can be tan, gray-brown or reddish-brown. It lacks distinct markings, but its head is usually darker than the rest of its body, and it has a striking salmon-pink belly.

The snake's smooth skin, small, flattened head and slender body allow it to move easily through the soil. This tiny snake eats scorpions, centipedes, spiders and soft-bodied insects. This species is equipped with slightly enlarged, grooved teeth at the back of the mouth. These are probably used to deliver venom that subdues prey.

Flat-headed snakes *do not* have the ability to bite a person when captured or handled and are not harmful to humans of any age.

Flat-headed snakes occur in the southern half of Missouri, except for the southeastern corner. This species can be found on dry, open, rocky hillsides, where they often burrow under rocks. Females lay from one to four eggs that hatch in late summer.



A flat-headed snake's belly is pinkish-salmon in color with no markings.



### **Rough Earth Snake**

*Virginia striatula*

Length: 7 to 10 inches

Similar in appearance to the western earth snake, the rough earth snake's name refers to a faint ridge or *keel* on each scale along the back and sides.

These snakes are gray, brown or reddish-brown with a lack of markings. Their belly is unmarked and cream-colored.

These snakes are found in the southern half of the state, except for the southeastern corner. They prefer rocky, open, wooded hillsides where they take shelter under flat rocks. Rough earth snakes mainly eat earthworms. They give birth in late summer to litters of two to nine young.



Rough earth snake



Western earth snake

### **Western Earth Snake**

*Virginia valeriae elegans*

Length: 7 to 10 inches

Similar in appearance to the rough earth snake, this small, slender snake has smooth scales and no distinct markings. Scales along the back and sides lack the ridge or *keel* of rough earth snakes.

Western earth snakes are generally gray to light brown or reddish-brown. A faint, light tan strip is usually found along the back. Their belly is plain white or cream-colored with no markings.

This species can be found primarily in the southern half of the state and in a few scattered locations in north-central Missouri. They frequently inhabit rocky, hilly woodlands where they hide under rocks and logs or in leaf litter. Earthworms and slugs are their main prey. They produce from two to 14 young during late summer.

# Hunting and Fishing Calendar

## HUNTING

	OPEN	CLOSE
Coyotes	5/7/07	3/31/08
Crow	11/1/07	3/3/08
Deer		
Firearms	11/10/07	to be announced
Groundhog	5/7/07	12/15/07
Rabbits	10/1/07	2/15/08
Squirrels	5/26/07	2/15/08
Turkey		
Spring	4/16/07	5/6/07

## FISHING

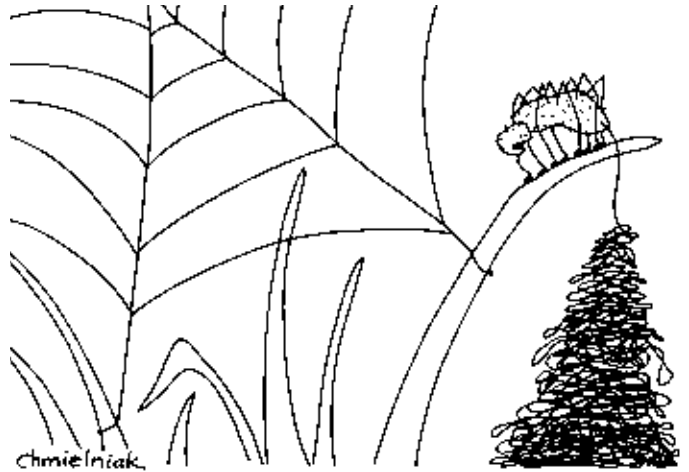
	OPEN	CLOSE
Black Bass (certain Ozark streams, see the <i>Wildlife Code</i> )	5/26/07	2/29/08
impoundments and other streams year-round		
Bullfrog	Sunset	Midnight
	6/30/07	10/31/07
Nongame fish snagging	3/15/07	5/15/07
Paddlefish on the Mississippi River	3/15/07	5/15/07
Trout Parks	3/1/07	10/31/07

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit [www.missouriconservation.org/8707](http://www.missouriconservation.org/8707) or permit vendors.

The Department of Conservation's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800-392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to [www.wildlifelicense.com/mo/](http://www.wildlifelicense.com/mo/).



Take part in the upcoming squirrel season. The season opens May 26 and closes on February 15, 2008.



"Well for cryin' out loud. I thought I shut that thing off."

## Contributors

TOM R. JOHNSON retired as state herpetologist with the Department of Conservation in 2000. He grew up in Wisconsin, earned his biology degree from the University of Wisconsin—Stevens Point in 1970, and came to the Department after seven years in the zoo field. Tom is the author of *The Amphibians and Reptiles of Missouri*. He now lives on a small farm in the Ozarks.



TORY MASON is a fisheries management biologist for Holt, Atchison and Nodaway counties. He began working for the Department of Conservation in August 2003. Tory grew up in northern Illinois. He enjoys fishing for walleye and panfish, bow hunting and waterfowl hunting with his two 2 labs and his layout boat.

HELENE MILLER has worked for the Department for nearly 30 years. She has worked in Kansas City as an urban forester for the past 10 years, advising city governments, volunteer groups and homeowners on tree-related issues. She has also worked in Kirksville, Springfield, Rolla and New Madrid. She can be found kayaking and bicycling when not at work.





## TIME CAPSULE

**May 1997**

In "Big Fish in Small Streams," Mark Goodwin wrote, "It's a well-known fact that many of the rivers that drain the Missouri Ozarks support trophy smallmouth bass." This truth endures a decade later, and with time and proper technique, you too can catch smallmouth bass over 15 inches long in the Current, Meramec and Gasconade rivers, and even the occasional smallmouth in excess of 20 inches (a trophy by any standard). You'll need patience in sharing space with canoeists, and you'll probably need to wade rather than float-fish their tributaries as the creeks are small. Though Goodwin warned that finding lunker smallmouth in creeks requires effort, he encouraged readers who enjoy privacy coupled with the chance to catch big smallmouth to consider fishing small Ozark streams.—*Contributed by the Circulation staff*



## AGENT NOTES

*Fielding questions about private ponds stocked with Department fish.*

DURING JUNE AND JULY, I look forward to visiting with landowners who have submitted a pond stocking application for a new or renovated pond or lake. Renovating old ponds sometimes becomes necessary if a dam has been damaged or if a new owner wants to increase the acreage of an existing pond to create better fishing. These folks are really interested in talking about fishing!

The first thing they want to know is, "If the Department of Conservation stocks my pond, how many folks do I have to let fish there?"

The answer is none. The Department of Conservation leaves the use of farm ponds and lakes stocked with fish it provides up to the landowners. We hope, however, that landowners will invite lots of friends and family to fish their pond. There is no better way to get a young boy or girl interested in the outdoors.

Landowners also ask how long it takes for the fish to grow big enough to keep. Growth rate depends on water clarity and fertility, cover, spawning success and food availability. In most cases, expect keeper-size fish 2 ½ to three years after the initial stocking. To improve growth rates, many pond owners pre-stock fathead minnows, giving newly stocked fish a ready food supply.

After the pond inspection period, I again look forward to visiting with landowners in the fall, when they pick up their first load of fish.



Marsha Jones is the conservation agent for Adair County, which is in the Northeast region. If you would like to contact the agent for your county, phone your regional Conservation office listed on page 3.

## behind the CODE

*Regulations for fishing in your private pond*

BY TOM Cwynar

Landowners have two good options for turning new or renovated ponds into great fishing holes. They can obtain fish free from the Department of Conservation or buy fish from commercial fish producers.

A third option, transplanting fish from other waters, isn't effective for building a balanced and self-sustaining fishery.

The method landowners choose determines how the fish and the pond they are in are treated by the fishing regulations in Missouri's *Wildlife Code*.

Ponds stocked with Department fish are considered "waters of the state" until they are drained or all fish are removed. Landowners control access to the waters, but anglers, except for landowners and members of their immediate family, need a valid fishing permit. Also, anyone who fishes in the pond must use legal methods and abide by statewide seasons, creel limits and length limits.

If landowners buy or otherwise provide fish for their pond, anglers are not subject to state fishing regulations. No licenses are required and anyone can harvest fish of any size by any method at any time. The fish can also be sold without special permits.

Landowners should keep receipts for the fish they buy and provide receipts to people who harvest fish from their private pond and remove them from their property.

For more information about regulations concerning stocked ponds, go to the Department's Web site at [www.missouri-conservation.org/7255](http://www.missouri-conservation.org/7255).



# “I AM THE NEXT GENERATION OF CONSERVATION”

Nathan Atlic of Pleasant Hope enjoys browsing conservation-related Web sites at the Polk County Library. Nathan is a member of the Springfield Conservation Nature Center's Conservation TEEN Club. To learn more about conservation activities, visit [www.missouriconservation.org](http://www.missouriconservation.org).



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